Testimony
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Before the
U.S. Senate Committee on Appropriations
Subcommittee on Energy and Water Development
May 8, 2008

The FutureGen program is a global public-private partnership formed to design, build, and operate the world's first near-zero emission coal-fueled power plant with 90 percent capture and storage of carbon dioxide (CO_2). It will determine the technical and economic feasibility of generating electricity from coal with near-zero emission technology. FutureGen has five years of progress behind it. More than fifty-million dollars have been obligated to the effort with the majority spent. It is positioned to advance integrated gasification combined cycle (IGCC) and carbon capture and storage (CCS) technology faster and further than any other program in the world. The location of the plant will be Mattoon, Illinois. The nonprofit structure of the FutureGen Alliance, and involvement of thirteen companies that operate on six continents, is consistent with its mission to facilitate rapid deployment of near-zero emission technology not only in the United States, but throughout the world.

Climate change is one of the most pressing, and most challenging, environmental concerns we face, from both a domestic and international perspective. Our government, and other governments around the world, either intend to, or are in the process of, developing policies to address the concern. Irrespective of which specific climate policy is ultimately adopted by the U.S., the success of that policy and our economic future will hinge on the availability of affordable low-carbon technology. Nuclear, renewables, biomass, and efficiency will all be part of the low-carbon technology solution. However, coal is used to generate over 50 percent of the electricity in the U.S., and is projected to remain the backbone of the U.S. electricity system for most of this century. Given that the growing economies of China and India will be fueled with coal plants, the availability of affordable, near-zero emission coal technology, incorporating CCS, is essential to our future energy security.

The Federal government has a pivotal role to play in fostering the development, demonstration, and deployment of near-zero emission coal technology. It is important that, as a Nation, we invest at the scale required to develop, prove, and deploy CCS technologies to the marketplace. While estimates vary, the required federal investment is certainly in excess of $10 billion over the coming decade. This investment in our Nation's future must be supported by the development and demonstration of near-zero emission coal technologies and CCS in a variety of applications.

The U.S. Department of Energy (DOE) is to be commended for its vocal support of near-zero emission coal technology, including CCS. Its support of this technology was recognized in backing the FutureGen program as originally envisioned, but a recent proposal to restructure FutureGen fails to recognize the scale of the challenge that this Nation, and indeed the world, is facing. DOE’s proposal to restructure the FutureGen program will delay technology development and integrated demonstration of commercial scale CCS by five years or more. It backs away from a nonprofit partnership that was created, at the request of DOE, to act in the public benefit and broadly share its technical results throughout the world. It rebuffs the participation of international companies (and countries) that are critical to the ultimate deployment of clean coal technology around the world. It undermines the reliability of the U.S. Department of Energy – and the United States – as a dependable partner.

Therefore, regardless of what other projects or what type of restructuring DOE proposes, it is essential that the Department reaffirms the Unites States’ position as a global leader in near-zero emission coal technology and CCS development by maintaining its historical position that FutureGen at Mattoon is the flagship program for advancing CCS technologies.

<u>Benefits of FutureGen at Mattoon</u>

FutureGen, located in Mattoon, Illinois, is in the national interest and is advancing IGCC technology with CCS faster and further than any other project in the world. Some key features of this program include:

- <u>FutureGen at Mattoon offers DOE an opportunity to beat its proposed timeline</u>. DOE’s January 15, 2008 Request for Information (RFI) suggests an on-line date of 2015 for projects using its restructured plan. In recent testimony before the House Science committee DOE suggested 2016 or 2017. The FutureGen Alliance has already delivered five years of progress, including contract negotiations, an enthusiastic and committed local community, a site that is technically and legally ready to go, a design and cost estimate, a final environmental impact statement, vendor relationships, and a team of fifty engineers and scientists. Prior to DOE-imposed delays FutureGen at Mattoon was on-track for a 2012 start-up. Even with these delays, no fully integrated, near-zero emission power plant project in the world can compete with FutureGen in terms of its ability to move forward with urgency on the required technology development and demonstration.

- <u>FutureGen at Mattoon will meet or exceed all DOE emissions and CO_2 capture goals</u>. All emissions and CO_2 capture criteria included in the 2004 FutureGen Report to Congress and DOE’s current Request for Information (RFI) will be met by FutureGen at Mattoon, ***including 90 percent CO_2 capture.*** It is imperative that DOE maintain the requirement of 90 percent CO_2 capture from the entire facility for the FutureGen program.

- <u>FutureGen at Mattoon is fully integrated and at commercial scale</u>. FutureGen at Mattoon incorporates a commercial-scale gasifier and commercial-scale ñFrame 7ò turbine. As configured, and with the commitment to share lessons learned widely, it gives industry a chance to learn about the cost, performance, and operating strategies for an integrated system with CCS. This knowledge will be directly applicable to the marketplace.

- <u>FutureGen at Mattoon is a hallmark for public benefit and information sharing</u>. As a nonprofit enterprise, the FutureGen Alliance will broadly share information from the project, facilitating the deployment of commercial, near-zero emission power plants throughout the world. It is appropriate for DOE to provide cost sharing for additional commercial CCS projects to facilitate deployment of CCS technology, but it must recognize that commercial projects, such as those being solicited under DOEôs restructured plan, by their very nature will feature protection of technological know-how and intellectual property within individual companies rather than sharing it for broad benefit.

- <u>FutureGen at Mattoon is a model that provides international involvement at an unprecedented level, which is essential to the rapid deployment of CCS technologies</u>. Thirteen companies with operations on six continents are participating as members of the Alliance. Climate technologies must be globally accepted and globally deployed, or they will not be effective. International participation has been exceptionally well-managed and has been a cornerstone of the information sharing in the program. No other project or program can replicate FutureGen at Mattoonôs level of international involvement. We need to remember that we are all striving to address ñglobal climate changeò not simply ñU.S. climate changeò. What better framework than a global public-private partnership to develop and establish the acceptable approaches to measure, monitor and verify that CO_2 has been successfully captured and permanently stored.

- <u>FutureGen at Mattoon provides a platform for testing advanced technologies, which accelerates technology development and saves the taxpayers money</u>. A power plant constructed and operated by any for-profit entity must by its nature operate as much as possible. There is no incentive to periodically shut down to cooperate with the DOE and technology providers to install and test new technologies so as to keep improving the performance and driving down the costs of zero-emission technology. Maximizing revenue rather than advancing technology is a duty to both ratepayers and shareholders.

  Once built, and power generation, carbon capture, and sequestration operations are underway, FutureGen at Mattoon can serve as a test bed for advanced technologies emerging from DOEôs Fossil Energy R&D program and industry R&D efforts. Such testing will ***not*** interfere with the primary mission of the facility to prove integrated CCS technology at a 90 percent capture level and sequester a minimum of one million tons per year of CO_2, and to develop and prove cost-effective approaches to advancing CCS technology. Absent FutureGen at Mattoon, alternative testing approaches will be far more expensive to both industry and taxpayers. Areas where DOE expects advancements to occur include oxygen production, gasifier improvements, gas clean-up, H_2 and CO_2 separation, H_2 turbine advancements and fuel cells. By proposing to end its support of FutureGen at Mattoon, DOE will be increasing the cost and difficulty of testing the very advanced technologies that its program managers seek to develop and deploy.

Project Costs and Financing

In DOEôs March 2004 report to Congress, DOE estimated the project cost as $950 million in Fiscal Year (FY) 2004 constant dollars. The estimated gross project cost in as-spent dollars through 2017 is $1.8 billion. The difference between these figures ($950 million and the $1.8 billion) is recent and projected inflation/escalation. There is no change in project scope. In preparing the $1.8 billion estimate, aggregate future inflation across the project was assumed to be 5.2 percent per year through 2017. This is higher than general rates of inflation, but is consistent with inflation rates for heavy construction and the process equipment industry over the past five years. These higher rates of inflation will likely be seen by all power-related projects, including FutureGen at Mattoon and other projects that DOE might advance. It is also important to note that this assumed rate of inflation is a long-term average. Finally, the $950 million is expressed in FY 2004 constant dollars and the $1.8 billion is expressed in as-spent dollars; therefore, it is technically incorrect to characterize the cost as having doubled. This would be comparing apples and oranges.

In March 2007, after reviewing the $1.8 billion project cost estimate, DOE signed a legally binding agreement to conduct the FutureGen project. Although the project cost estimate has not changed since DOEôs original signing of the agreement, in a January 30, 2008 letter, DOE notified the FutureGen Alliance that it wanted to terminate support for FutureGen at Mattoon, citing two concerns:

(1) ñthe Departmentôs serious concerns over the substantial escalation of projected [project] costsò; and

(2) ñthe [FutureGen] Allianceôs insistence regarding *project financing*ò (emphasis added).

DOEôs letter goes on to state that the Department cannot agree to the Allianceôs request to ñsatisfy a substantial portion of its cost share commitment with borrowed funds using FutureGen assets as collateralò and concludes that ñthe Allianceôs desire to mortgage the FutureGen project would have subordinated the taxpayersô interest and placed DOE ï the majority owner of the project ï at risk of having to surrender the facility to the Allianceôs outside lenders had the Alliance withdrawn from the project or defaulted on its debt repayment obligations.ò The letter states that ñ[i]n short, the financing approach proposed by the Alliance not only represented a substantial departure from DOE practice concerning projects in which the Government bears a majority of costs, but would have significantly increased taxpayer risk as well.ö

The Alliance takes issue with both of DOEôs points:

(1) Costs have not escalated since DOEôs last review of the cost estimates for the project, so there is no basis for DOEôs apparent surprise about the projected costs for the project. Also, following completion of the next design phase, all parties will have the opportunity to review refined site-specific cost estimates before proceeding with final design and construction.

(2) Third-party financing for power plants is a commonly used tool to help ensure project success. Nearly every coal-fueled power plant project in the country, including DOE co-funded efforts, has involved financing. Further, the Alliance is largely providing cash to the project and the financed component is relatively small.

With respect to cost escalation, the DOE letter acknowledges that the change in projected costs, which occurred prior to their last review, ñappears to be largely attributable to market conditions.ö As the letter appears to recognize, such costs are not the result of any mismanagement by the Alliance. Rather, DOE and the Alliance recognized up front that market conditions were an uncertainty that could affect the cost of the project. Article 21 of the Cooperative Agreement states that, ñGiven the nature of this first-of-a-kind Research and Development project, DOE and the Recipient recognize that many uncertainties (e.g., plant design, selection of a site, construction and operations, market conditions, the impact of DOE requirements on any potential cost increases to subcontractors who bid the project, and the project schedule, CO_2 storage and MMV, and market conditions for power plants and commodities) still exist in formulating a firm estimated cost.ö In fact, large construction and infrastructure projects throughout the global economy are affected by these same market conditions. There is no reason to believe that any alternatives to FutureGen at Mattoon would not also be affected by these same market conditions and cost impacts.

With respect to financing, it should be noted that the Alliance, as a 501(c)(3) organization, relies upon contributions from its member companies as a source of its industry cost share. The Allianceôs member companies will donate nearly $400 million to this DOE project, and unlike with other DOE clean coal technology projects, they will gain neither financial return nor intellectual property. This contribution is spread over approximately eight years. However, the peak construction costð and thus peak cash outflowð occurs in the middle years of the project. The Alliance proposes to use financing to match construction cash flow requirements with member company cash contributions, and also as a risk management tool to handle potential cost increases in the future, if they should occur.

Specifically, the Alliance has proposed the following approach to DOE to achieve these goals and address DOE concerns, even though the Alliance does not find DOEȇs concerns fully founded:

- DOE will have an opportunity for partial-to-full repayment.
- Alliance member companies have no opportunity for repayment.
- Each Alliance member company would make a minimum dollar pledge. This would ensure that the companies would have ȃskin in the gameȄ and not use financing to avoid meaningful industry cash contributions.
- The Alliance would use a modest portion of the plant asset, which the Alliance is helping to purchase, as collateral for financing, as is done on other DOE clean coal projects. (Commercial projects are typically 50-80% financed. FutureGen would likely only be 10-20% financed).
- The Alliance will use potential revenue from the operation of the facility as a pledge to the lending institution for financing, which is common commercial and DOE practice.

DOE has been aware that financing would be used on the project for years, and did not object to such an approach when it signed the Cooperative Agreement for the project. The Alliance reiterated to DOE that the project would probably require such a financing structure in the summer of 2007, when the Alliance and DOE engaged in discussions to address new DOE concerns with the Cooperative Agreement. So, the apparent surprise on DOEȇs part that the Alliance would seek third-party financing is unwarranted.

The Allianceȇs proposed financing approach, which includes borrowing funds to meet a portion of the Allianceȇs cost-sharing commitment to the project, is fully consistent with applicable law and the existing Cooperative Agreement between the DOE and the FutureGen Industrial Alliance, and therefore, not, as DOE alleges, ȃa substantial departure from DOE practice.Ȅ

Nothing in the law prohibits DOE award recipients with cost-sharing obligations from utilizing third party, non-recourse financing to facilitate fulfillment of their cost-share obligation. Similarly, nothing in the existing Cooperative Agreement prohibits the Alliance from utilizing such financing. Indeed, the governing regulations that establish rights to project property and that are specifically incorporated into the Cooperative Agreement (10 C.F.R. §§ 600.130 Ȃ 600.137), and the current Cooperative Agreement itself, both contemplate this possibility. Article 25 of the Cooperative Agreement provides that the Alliance may not ȃencumber the property [acquired during the project] without DOEȇs prior written consent,Ȅ and thus contemplates that the Alliance <u>may</u> encumber the property with DOE approval. The regulations are substantively similar. Thus, rather than prohibit third party financing security interests, the governing regulations and Cooperative Agreement instead require that the Alliance, the recipient, obtain DOE consent to the creation of any financing encumbrances.

Many DOE-supported projects rely on similar financing approaches. There is ample precedent where DOE has accepted projects that have proposed to finance the industry portion of a cost-share project by means of a project finance structure in which recourse, in the event of a default on a loan, is limited to the project itself and associated assets. Indeed, DOEõs willingness to accept such financing structures is embedded in the recently inaugurated loan guarantee program authorized by Title XVII of the Energy Policy Act of 2005. Further, DOE has a pending solicitation posted on its website for the Clean Coal Power Initiative that allows financing.

Moreover, overall, the Allianceõs proposed approach would not, as DOE asserts, ñsignificantly increase[] taxpayer risk.ò The Alliance recognizes that its financing proposal results in some manageable risk to the Federal government.[1] However, the Allianceõs proposal on financing was and is only one element of a larger package of compromises offered to DOE in good faith in the summer of 2007 to help ensure that project is successfully completed and that the intended benefits of the project accrue to DOE and the public. On balance, we believe that the benefits of this overall package far outweigh any incremental risk to DOE associated with the packageõs financing proposal component.

It is important to reinforce that an existing legally binding agreement is in force and these discussions are an attempt by the Alliance to address DOE concerns earlier than both parties previously planned.

It is significant to note that if DOE walks away from the project now, as it is apparently willing to do, a significant portion of DOEõs contribution to date will not have achieved the desired taxpayer return. DOE not only risks losing its financial investment, but also risks losing its investment of time, given the years already spent moving the project forward to the point.

The way to ensure the highest return on the investment that the Federal government already has made in the project is to successfully demonstrate, with international participation, an advanced power generation technology that is not being planned elsewhere coupled with the capture and long term storage of CO_2. The Alliance and its members are in the same situation. For that reason, there is every incentive on the part of the Alliance and its members that the project succeeds.

FutureGen at Mattoon is not an ordinary project for our country. The FutureGen Alliance represents a totally unique attempt by industry to aggregate financial and technical resources, to do so on an international basis, and to undertake a research, development, and demonstration project with no promised return on investment to its members other than addressing a global problem through a technological solution. By the governmentõs

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[1] So long as the Alliance neither withdraws from the project nor defaults on its debt repayment obligations, DOE will not incur any additional risk or obligation as a consequence of the Allianceõs financing proposal. Even if the Alliance were to withdraw from the project or default on its debt obligations, DOEõs risk should be limited, and DOE should have the ability to prevent a situation where it would be at risk of ñhaving to surrender the facility to the Allianceõs outside lenders,ò as stated in its letter.

own admission, the FutureGen project represents our Nation's most significant attempt to support technology development to comprehensively address global climate change. It should be given a fair chance to succeed.

Given that the Nation appears to be on cusp of a massive effort regulate CO_2 emissions that will cost electricity consumers across the nation hundreds of billions of dollars over the coming decades, it seems reasonable to invest several billion dollars on the front-end, in this project and others, to prove out the technology.

Just as important as the $1.8 billion dollar cost is what the non-profit Alliance has committed to in the Cooperative Agreement to mitigate the government's financial exposure and additional offers the Alliance has made to DOE. Among the provisions in the Cooperative Agreement are:

- Alliance agreed to provide 26 percent industry cost-share. This is up from the original 20 percent requested by DOE on the day the President first launched the initiative.
- The Alliance and DOE agreed to negotiate an adjustable cap on the DOE contribution, where the level of the cap would be adjusted up or down based on inflation/escalation indices (a common practice in industry). This adjustment would be negotiated after the current project phase.
- The Alliance and DOE agreed to share revenues pro-rata instead of the typical cooperative agreement whereby the private partner keeps all of the revenues. The effect of this was to have 74 percent of the estimated $300 million in revenues be allocated to reduce DOE's cost share.
- The Alliance and DOE agreed to share proceeds from the sale of the facility on a pro-rata basis instead of all being allocated to the industry partner as is typical for industry/DOE co-funded projects. This has the net effect of creating the potential for a material repayment of DOE's cost share. To the best of our knowledge, this is unprecedented in the history of Clean Coal Technology (CCT) or Clean Coal Power Initiative (CCPI) projects.
- Contributing Alliance members under the 501(c) (3) structure would not receive any repayment of their contributions from project revenues or a facility sale. Such funds must be directed back to research and development.

At the end of the current project phase (i.e., Budget Period 1), an updated cost estimate will be prepared that takes into consideration site-specific design considerations and makes adjustments (up or down) for changes in marketplace escalation.

The Alliance has every motivation to control costs. The FutureGen Alliance is not simply a contractor billing DOE to perform a service. The Alliance is sharing in the costs pro-rata and is motivated to see technology developed at the lowest possible cost. FutureGen at Mattoon's unique financial structure mitigates taxpayer exposure. After the project's mission is fulfilled, if the plant is sold, DOE will be repaid in part or in full for its investment from sale proceeds. Industry financial contributors will never receive a single dollar of financial return. This represents an unprecedented level of commitment.

Further, the Alliance members are providing their expertise in developing and managing large power plant projects with the discipline. The Alliance is willing to make this commitment because this investment is squarely in the interest of both the nation and the world.

History of DOE Interactions

The FutureGen program was initially launched in February 2003 by President Bush. At this time, industry was challenged to organize a consortium of companies to participate in the project. A consortium was judged to be a better approach than DOEôs historical approach of co-funding single company projects, as there was a clear objective to have broad industry engagement. DOE representatives clearly conveyed that the business arrangement would be patterned after previous CCT cooperative agreements. Also, because of the project scale and the desire to make the effort a global one to accelerate the technology use, it was indicated that the more restrictive CCT requirements would be removed. Specifically, the DOE represented the following anticipated terms:

- 20 percent non-federal cost-sharing;
- no repayment requirement from the industry partner;
- ability to vest ownership of the plant with the industry partner;
- traditional CCT program data protections for the industry partner;
- potential for program income (electricity, CO_2, and byproduct sales) to be shared among project participants proportional to their cost sharing during the four-year project operating program;
- all of the post-project revenues to the industry partner, including any proceeds from a sale of the facility after the project; and
- an advance appropriation of $300 million toward the project through a programmatic transfer of funds from several cancelled CCT projects. (Typically, DOE appropriates all of the funds on a CCT project in advance. However, in FutureGenôs case, DOE determined full advanced appropriation was not possible).

It was with this framework in mind that industry formed the Alliance, made representations to Congress and around the world, and grew its membership. Further, in the interest of ensuring that neither the DOE nor industry were inappropriately considered to be engaging in ñcorporate welfareò, the Alliance was formed as a nonprofit 501(c) (3) entity. The decision to incorporate as a 501(c) (3) entity is unprecedented for an industrial partner in a DOE clean coal project cooperative agreement, and has the following implications for the Alliance members and DOE:

- unlike DOE, the industry contributors can never share in a single dollar of program income or proceeds from the plant sale if that ever occurs;
- any program income or proceeds from the plant sale realized by the Alliance must be reinvested in public benefit R&D; and
- unlike DOE, the industry contributors do not gain any stake in intellectual property rights.

At the time of the project launch the DOE leadership team included:

- Secretary Spencer Abraham,
- Deputy Secretary Kyle McSlarrow,
- Under Secretary Robert Card, and
- Assistant Secretary for Fossil Energy Michael Smith.

The public-private partnership was cemented through an initial Limited Scope Cooperative Agreement signed in 2005. This limited scope agreement supported preparation of a conceptual design report and initiation of the site selection process.

By the time of the signing of the initial Limited Scope Cooperative Agreement, Secretary Abraham, Kyle McSlarrow, Robert Card, and Michael Smith had left the Department and were replaced by:

- Secretary Samuel Bodman,
- Deputy Secretary Clay Sell,
- Under Secretary David Garman, and
- Acting Assistant Secretary for Fossil Energy Mark Maddox.

For the Cooperative Agreement, the National Energy Technology Laboratory (NETL) under the Office of Fossil Energy serves as the official contracting entity for DOE on FutureGen. The Alliance is accountable to NETL on all technical and contractual issues. The official contracting officer is the individual with the authority to modify the Allianceôs work scope, adjust budgets, or make binding determinations on which activities under the Cooperative Agreement can and cannot proceed. The working relationship with the staff at NETL has been very positive. This included DOE management regularly being invited to Alliance board of directors meetings. This is also unprecedented for a DOE clean coal project. From our vantage point, it appears that DOE concerns about the project have been raised by its political leadership. It is also been the case that the DOE political leadership has often provided advice, which was valuable and consistent with contractual obligations, and has been followed.

During the conduct of the Limited Scope Cooperative Agreement, Mark Maddox left the Department and was replaced by:

- Assistant Secretary for Fossil Energy Jeffrey Jarrett.

Following completion of the activities covered by the Limited Scope Cooperative Agreement, in December 2006, the Alliance submitted a conceptual design report and cost estimate to DOE. This material served as the basis for negotiating a $1.8 billion Full Scope Cooperative Agreement.

The Full Scope Cooperative Agreement acknowledged the higher project costs similar to those of every other major energy infrastructure project. In its original estimates DOE had expressed costs as constant F Y 2004 dollars versus out-year, as-spent dollars. Both the Alliance and members of DOEôs leadership team were advised of and were well aware of their increased contributions resulting from global escalation. The project did not change in scope from its inception. DOE agreed to proceed and a Full Scope Cooperative Agreement was signed in March 2007, with a gross cost of $1.8 billion, and a net cost of $1.5 billion (the net cost reflects credit for electricity sales used to offset part of the gross project cost).

The Full Scope Cooperative Agreement runs through 2017, with most of the expenditures concentrated in the next five years. Upon DOEôs approval of the agreement, Alliance members irrevocably committed $10 million dollars to the current project phase and collectively budgeted nearly $390 million dollars of private money for future project phases. The Allianceôs responsibilities in the first phase (termed Budget Period 1) of the Cooperative Agreement include selection of the final site, additional design, preparation of a site-specific cost estimate, and procurement of long-lead items.

Throughout 2007, the Alliance and the four finalist sites continued to spend millions of dollars to advance the activities. The DOE continued its efforts to bring in government partners including China, India, Japan, South Korea and Australia. Project costs were a part of the negotiation with these countries. A few have already committed funding to the project. The Alliance hired staff, leased office space and retained key global contractors.

At some point after the Full Scope Cooperative Agreement was signed in March 2007, something in the Department had clearly changed or confusion had evidently developed, as Deputy Secretary Sell raised very surprising concerns about out-of-control costs, scope growth, that DOE was liable for 100 percent of the cost growth, and that the Alliance was ñmismanaging the project.ò The Alliance did not agree with these observations and the Alliance promptly suggested a meeting to discuss the new concerns. A presentation from that meeting is included in this testimony as an attachment. In August of 2007, DOE representatives routinely attended an Alliance Board of Directors meeting where they acknowledged to the Alliance Board that the cost growth was now understood to be due to market escalation, recognized that the project was managed by the Alliance effectively, that the Alliance has been responsive to the DOE, and that cost increases were not due to scope growth.

To this day, it is unclear why after a multi-month review process and negotiation for the Full Scope Cooperative Agreement, concerns could have arisen within DOE as early as one month after the signing of a $1.8 billion agreement.

It should be pointed out that both the Alliance and DOE were concerned about marketplace escalation. It was the Allianceôs view that the appropriate way to address the issue was to follow the plan in the Cooperative Agreement and complete the current project phase, which included a site-specific engineering cost estimate. At that time all parties could discuss how DOEôs financial exposure could be mitigated further. In the Allianceôs view it was premature to renegotiate the original agreement when neither party had better engineering cost information or better information about escalation than when the original negotiations and agreement occurred.

Further, to maintain a large capital project on track, it is important to establish and follow a well designed plan with predefined project phases. Had DOE and the Alliance followed the plan as agreed to in March 2007, we would be sitting here today with a final site, Mattoon, a site-specific construction design, and a site-specific cost estimate. There would have been sufficient time during this administration to adjust the Cooperative Agreement based on this new information. Instead, the effort is nearly stalled and valuable time is being lost.

During the late-Spring/Summer of 2007, David Garman and Jeffrey Jarrett left the Department and were replaced by:

- Under Secretary Clarence ñBudò Albright, and
- Acting Assistant Secretary for Fossil Energy Thomas Shope.

In late-September 2007, newly appointed Under Secretary Albright communicated, as general concepts, a set of Cooperative Agreement modifications. This introduced a new series of requests. Most were related to shifting more risk and cost from DOE to the Alliance. Early conversations were cordial and productive. From a business and capital project management perspective it did not make sense to the Alliance to modify the agreement in mid-stream without further project data such as site and cost estimate details; however, there was a recognition and willingness of the Alliance to modify the agreement at the appropriate time. Further, there was Alliance willingness, in principle, to accept DOEôs request that after the DOE had expended a mutually agreeable sum, any future cost increases above that sum would be shared 50/50 versus the previously agreed to 26/74. During meetings with DOE, the general concepts were developed in an initial term sheet of modifications for further discussion.

Thomas Shope left the Department during this time period. The Assistant Secretary position remains vacant to this day.

In mid-October 2007, a stumbling block was reached when DOE raised for the first time an absolute demand to limit the Allianceôs ability to use commercial financing for a portion of the project. Commercial financing is routinely used on DOE clean coal projects and is expressly contemplated in the applicable regulations. Financing is an important tool to manage project cash flow and manage unforeseen risks. Normal private sector energy projects are typically financed 50-80 percent of total project cost. In the case of FutureGen, a lesser amount of 10-20 percent is manageable. Financing had been discussed with DOE as early as 2003 and the Alliance had an obligation to provide a financing plan to DOE prior to the start of the next project phase. Thus, for financing to be eliminated or highly restricted by DOE came as another surprise.

Still, the Alliance, based principally on a series of strong positive signals to come from DOE and the administration, operated under the view that the DOE concerns could ultimately be resolved no later than the start of the next project phase and that selection of a final site and preparation of a site-specific cost estimate would help in the resolution of those concerns. The Alliance made it very clear that its members would agree to contribute their pro-rata financial commitments of ~$400 million in cash, subject to the availability of matching DOE cost-share. Thus, there should be no concern over the Alliance walking away after construction begins. Moreover, the Alliance would have already spent tens of millions of private sector money before construction so there would be the added incentive to see the project to completion.

In parallel to these discussions with DOE, and DOE's position that financing should be highly restricted, the following very positive events occurred over the Fall of 2007 leading up the final site announcement:

- Secretary of State Condoleezza Rice made positive mention of FutureGen in a speech before the United Nations
- President Bush made positive mention of FutureGen in a meeting of Major Economies on Energy Security and Climate Change.
- DOE issued an approximately 2000-page Final Environmental Impact Statement (EIS) and published a Notice of Availability in the Federal Register on November 16th. The EIS described the relationship between DOE and the Alliance, the project costs and cost-share, and DOE's preferred alternative to provide financial assistance to the FutureGen project.
- DOE issued a press release indicating that completion of the EIS would enable a site announcement by year-end.
- DOE was communicating to members of Congress that a site would be chosen by year-end.
- The EIS Notice in the Federal Register started an important clock on a 30-day "wait period" before the end of which DOE could not issue a final Record of Decision (ROD). The Alliance and DOE had discussed, multiple times, in the preceeding six months, that DOE would issue the ROD when the 30-day wait period expired (December 16 was the expiration date) and the Alliance would announce the site no later than December. DOE provided an advance copy of the final draft ROD for Alliance review. This interaction included a discussion that DOE was on-track in its preparation of the ROD so that it could be issued on December 17, albeit an aggressive schedule. DOE staff were working hard, and it was an excellent team effort.

On the basis of these positive actions by DOE and the administration, the Alliance made the final site decision the first week in December. The Alliance was obligated to make this site selection under the terms of the still active Full Scope Cooperative Agreement. Given the involvement of thirteen companies, communication planners, project staff, and others, within a week approximately fifty individuals knew the site was Mattoon. While still confidential, the Alliance recognized the wheels were now in motion and the site would be known either through an organized message or through an unintended leak. Obviously an organized, versus unintended, release was the preferred approach.

On December 10th, DOEõs Deputy Assistant Secretary for Oil and Natural Gas Programs, who was also Acting Principal Deputy Assistant Secretary for Fossil Energy, called the Alliance CEO to indicate a letter would be coming to the Alliance. A letter followed, from Mr. Slutz, indicating a delay in DOEõs issuance of the ROD and indicating it was ñinadvisableò for the Alliance to schedule an announcement of the selected site while offering no compelling reason for a delay. At that time, (with all due respect to Mr. Slutz and his position), the Alliance cannot recall having heard from him before, nor was he known to be a central player in the Departmentõs project decision making process. Consequently, the Alliance weighed very strongly whether or not to take DOEõs advice against other compelling factors for proceeding.

Given that the wheels on the site announcement were already in motion, the site decision was already made and becoming more difficult to keep confidential with so many individuals knowing the final site, and project delays costing as much as $10 million per month, the Alliance felt the reasons for proceeding outweighed the reasons for delay. The Alliance had already reviewed an advance copy of the ROD, which reaffirmed the EIS findings and concluded all four candidate sites were acceptable. It was assumed the ROD would indeed be released on time or soon thereafter without issue, as it was effectively complete. There was also a strong feeling that it was inappropriate for the Alliance to string along the states of Texas and Illinois with another delay. The states had been spending substantial amounts of their sparse state resources and had originally been promised a site announcement in September, then October, and then November driven by slippage in the EIS release. The efforts of both states were commendable and they earned our admiration for always having been prompt when it came to meeting their deadlines to the Alliance.

While DOE had suggested a possible restructuring to several of the Alliance member companies, this information was only heard by the Alliance management through third parties with sketchy details. Since the projectõs outset, it has not been uncommon to hear rumors or misinformation third hand that never materialized as correct. No official representative of the Alliance was specifically told of the restructuring plans by DOE prior to the day of the DOE announcement.

DOEõs Proposed Restructuring

As currently configured, DOEõs proposed restructuring would effectively result in the termination of FutureGen at Mattoon. The Alliance Board carefully evaluated the proposed restructuring and has concluded that neither a thirteen-member consortium nor a smaller Alliance consortium could successfully conduct FutureGen at Mattoon under the newly proposed model. The reasons for this are technical, financial, and business structure related. The Alliance also has serious concerns about the adequacy of funding under the proposed restructuring, and whether *any* project conducted by *any* party could meet the stated DOE goals in a timely manner. The Alliance view remains that it is in the national interest to *complement* FutureGen at Mattoon with additional, adequately funded projects in a variety of engineered applications and a variety of geologic formations, but that complementary projects must not come at the expense or delay of the number one priority, FutureGen at Mattoon.

Further, DOE has cited a changing marketplace and cost-related issues as the basis for their decision. Cost issues have been addressed above. With respect to the changing marketplace, DOE argues there are now many commercially announced IGCC projects and carbon capture and sequestration could be incrementally added to them. While there are numerous proposed IGCC projects, it is widely recognized within industry that few of these projects will come to fruition. In fact, since DOE signed the Cooperative Agreement in March 2007, the number of commercial IGCC projects has declined not increased. Those few projects which are proceeding face both financial and regulatory challenges. Thus, the market is not as mature or stable as DOE has implied.

DOE cites two conventional IGCCs without CCS as being permitted. We applaud the leadership of Duke, AEP, and Southern Company who are farthest along in the development of commercial IGCC projects without capture. However, one must look at the actions of these companies as early market deployments that must overcome some substantial hurdles. In the case of Dukeøs IGCC, nearly $400 million in tax incentives and a 18% rate increase were required in order for this plant represent a sound commercial investment. Further, last week Duke reported the need for an additional $365 million from the ratepayers for its 630-MW IGCC. This again is for a plant without CCS. In the case of AEPøs IGCC, it has had difficulty gaining approval for the rate increases in both Ohio and Virginia necessary for it to be a sound commercial venture. Thus, one cannot conclude there is a mature, sustainable market for conventional IGCC plants without CCS.

Adding CCS to an IGCC further complicates the siting, design, construction, and operation of the plant. It also complicates the business structure associated with building such a plant. It is a common misconception that adding CCS to a conventional IGCC is simple, particularly at high rates of CO_2 capture. It is relatively straightforward to capture at rates of 20 percent. It becomes more costly at rates approaching 60 percent. As one exceeds ~60 percent and approaches 90 percent capture, which is DOEøs stated goal, it becomes technologically very challenging as major system components must be modified or changed out completely. It also is far more expensive. Given these complications and the need for bold technological advances, the first such plant is best left to a public-private partnership that is not bound by the constraints of a normal profit-making venture. That partnership involves building FutureGen at Mattoon with 90 percent CO_2 capture.

Currently, DOEøs proposed restructuring leaves many unanswered issues that are of concern. Some of the specific concerns about DOEøs proposed restructuring include:

- <u>DOEøs schedule under the restructuring proposal is unrealistic</u>. DOE has an important obligation to the taxpayer to follow comprehensive contracting processes, conduct technology reviews, and prepare an environmental impact statement on any new project. The schedule (i.e., a proposed on-line date of

2015) in the Request for Information (RFI) is not realistic for a project that meets 100 percent of the stated goals. Many potential industrial partners are unfamiliar with DOE's required practices, and it is important that the DOE inform them of a reasonable schedule so that they can properly conduct the project and deal with their third-party investors. Overly optimistic schedules are a disservice to Congress, industry, and the public.

Based on our experience, the following would be a fast-track schedule for DOE to identify an alternative, fully integrated project that meets all of the existing performance goals for the FutureGen program:

- 2009+: project selection and cooperative agreement negotiation
- 2012: completion of preliminary design, environmental impact assessment and record of decision
- 2013: completion of detailed design and procurement of major technology components
- 2017: completion of construction
- 2018: initial operation
- 2022: completion of test period

- DOE's restructured approach has problematic business parameters. DOE's proposal implies that 90 percent capture simply involves the addition of new technology to an existing IGCC. It does not. The complex integration of CCS into a commercial IGCC plant will entail significant modifications to many other systems, including commercial systems inside the base plant. It would also largely require a restart of design work done to date on the base commercial plant. Thus, the government, its procurement rules, and its oversight practices could easily extend into the commercial, for-profit power plant. Further, applying FutureGen funds to a project with anything appreciably less than capturing 90 percent of the ***total*** CO_2 emissions from the ***entire*** plant would fall short of what is needed to rapidly develop near-zero emission coal plants.

- DOE's restructured approach does not address the increased marginal cost of electricity due to adding CCS to a plant. The modified plant that DOE proposes that industry build *will cost substantially more to operate* than a traditional plant. DOE's RFI is largely silent on operating costs. Adding CCS to an IGCC plant is expected to increase the cost of electricity by as much as 50 percent and the marginal production cost by as much as 20 percent. Because power plants dispatch electricity to the grid based on their marginal operating cost, the approach DOE proposes could result in a plant that is too expensive for industry to operate.

- DOE appropriately retained the 90 percent capture goal in its RFI and must do so in any awarded projects. However, DOE has recently made public statements that this goal may be relaxed. The FutureGen program has identified 90 percent CO_2 capture as an important requirement to advance CCS technology. This level of

CO_2 capture has significant impact on the design of many critical components of the facility, such as the combustion turbine, gas clean-up system, and syngas clean-up system. It would be a serious mistake if this target level is relaxed. Ninety percent is a technical goal designed to ensure a sustainable future for coal in a carbon-constrained world. Todayøs commercial projects cannot technically or economically achieve this goal and DOEøs program should focus on bold technological advances, not incremental change.

- Plant revenue must go to the industrial partner. In a commercial project, it is expected that all of revenue would need to go to the industry partner. For FutureGen at Mattoon, DOE shared in the project revenues substantially offsetting federal investment. For projects conducted under DOEøs new approach, the industrial partner would insist that plant revenues go to the industrial partner so that the private sector participants can generate a commercial financial return.

In its 2004 report "FutureGen Integrated Hydrogen and Electric Power Production and Carbon Sequestration Research Initiative,ò DOE acknowledged the necessity for the type and level of risk sharing associated with FutureGen at Mattoon if technology is to advance at the required pace. In its report, DOE said:

> ñFutureGenøs integration of concepts and components is key to providing technical and operational viability to the generally conservative, risk-adverse coal and utility industries. Integration issues such as the dynamics between upstream and downstream subsystems (e.g., between interdependent subsystems such as the coal conversion and power and hydrogen production systems and carbon separation and sequestration systems) can only be addressed by a large-scale integrated facility operation. Unless the production of hydrogen and electricity from coal integrated with sequestrating carbon dioxide can be shown to be feasible and cost competitive, the coal industry will not make the investments necessary to fully realize the potential energy security and economic benefits of this plentiful domestic energy resource.ò

Technology advancements and market changes in the last five years have not changed this need for a full scale validation envisioned in DOEøs report and FutureGen at Mattoon.

There is no program in the world that can move near-zero emission power and CCS faster or further than FutureGen at Mattoon. The FutureGen Alliance is nonprofit, includes unprecedented international involvement and information sharing, and has a site that is technically and legally ready to go. Alternatives will cost the country five years or more of delay, cost the taxpayers more, and/or deliver less in terms of results.

As Congress and the administration debate the appropriate structure for the FutureGen program, the Alliance urges that all of the factors raised in this testimony be taken into account. FutureGen at Mattoon should be maintained as a global flagship program that is the nation's top priority for advancing near-zero emission coal technology, and complementary projects should be added to the program as the budget allows.

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